State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Chloride Variance Application

Form 3400-193 (R 08/14)

Please find the mailing address for the DNR location nearest you by visiting our website
http://dnr.wi.gov/Contact/SSbyCity.html

Notice: Information requested is required for the Department to determine whether or not to grant a variance under the provisions of sections NR 106.80 through 106.96, Wis. Adm. Code. Failure to provide all of the requested information may result in denial of your application. Personal information collected will be used to administer the watershed program and may be provided to requesters as required by Wisconsin's Open Records law [ss. 19.31-19.39, Wis. Stats.]

Applicant Information

Company Name	Contact Name		
Village of Sussex	Dennis Wolf		
WPDES Permit No.	Street Address		
WI-0020559	N64 W23760 Main St.		
Facility Name	City	State	ZIP Code
Village of Sussex Water Pollution Control Facility	Sussex	WI	53089
Street Address	Telephone Number (include area code)	FAX Number	
N59 W23551 Clover Dr.	(262) 820-3129	(262) 820-3132	
City / State / ZIP Code	E-mail Address		
Sussex / WI / 53089	dwolf@villagesussex.org		
Receiving Water	Average Discharge Flow Rate		
Sussex Creek	2.1572 (Last 2 years average)		

Capital Cost

Have you done a study to determine the capital cost of end-of-pipe chloride removal for your facility?

- ○ Yes - Please include the information with this worksheet or mail it with the signature portion of the permit application.
- ◉ No - Please complete this estimate of relative capital cost:

Chloride Removal Capital Cost:

$1.125 x Annual Average Design Flow (in MGD) X 1,000,000 = $5,737,500

Chloride Removal as a Percentage of Annual Capital Cost:

$$\frac{\text{Chloride Removal Capital Cost } \textit{(from above)}}{\text{Capital Cost of Current Wastewater Facility}} \times 100 = 83.2\ \%$$

Operational (O&M) Cost Based on the Cost Estimate

Have you done a study to determine the annual O & M cost of end-of-pipe chloride removal for your facility?

- ○ Yes - Please include the information with this worksheet or mail it with the signature portion of the permit application.
- ◉ No - Please complete this estimate of relative O&M cost:

Chloride Removal O&M Cost:

($1.00 x Annual Average Design Flow (in MGD) x 1000 x 365) = 1,861,500

Chloride Removal as a Percentage of Annual O&M Cost:

$$\frac{\text{Chloride Removal O\&M Cost } \textit{(from above)}}{\text{O\&M Costs of Current Wastewater Facility}} \times 100 = 128\ \%$$

Treatment Facility Information

Do you know of a facility that could accept the concentrated brine solution that would result from end-of-pipe chloride treatment? ○ Yes / ◉ No

If yes, Name of Facility _____

The information in the following questions is requested to assist the permittee and the Department in determining appropriate effluent values or limitations, compliance schedules and source reduction measures.

Sample Information

Have you sampled at least eleven effluent samples for chloride over the course of at least a year? ◉ Yes / ○ No

For Municipalities Only	Yes	No
a) Have you identified industrial contributors of chloride to your sewer system?	◉	○
b) Have you requested voluntary reductions of chloride from any industrial users to your sewer system?	◉	○
c) Have you instituted sewer use ordinances regulating or limiting the discharge of chloride from significant industrial users?	○	◉
d) Does your community have centralized softening of source water through a water utility?	○	◉
e) Have you determined typical concentrations of chloride from domestic users of your sewer system?	◉	○
f) Does your community implement a public information program on proper maintenance and improved efficiency of residential softeners?	◉	○
g) Have you implemented local ordinances to mandate the use of efficient softeners?	○	◉

For Industry Only	Yes	No
a) Is privately softened water, use of brine, or use of salt integral to your production process?	○	○
b) Do you operate a private softener for your industrial process?	○	○
c) Have you optimized operation of your water softener (adjustment of regeneration interval, salt dosage, replacement of backwash controller)?	○	○
d) Have you determined which industrial processes can be run without softened water?	○	○
e) Have you implemented practices to reduce or reuse any brine solutions or softened water in your industrial process?	○	○
f) Have you implemented housekeeping practices to reduce spillage of any brine solutions, or to minimize the contribution of salt to the wastewater treatment system?	○	○

Please list any contributors to the POTW in the following categories: (For industrial permittees, skip to the certification section.)

Food processors (cheese, vegetables, meat, pickles, soy sauce, etc.)

Metal Plating/Metal Finishing

Car Washes
Hometown Super Wash, 7-11 car wash

Municipal Maintenance Sheds (salt storage, truck washing, etc.)
Public Works garage, WPCF garage

Laundromats
Sussex Laundry

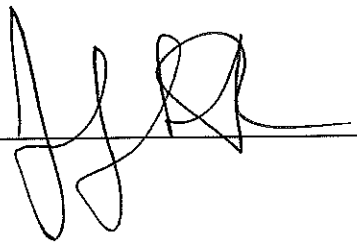
Other presumed commercial or industrial chloride contributors to the POTW
Apartment buildings, Hamilton School District, Quad Graphics, Nature's Path, Kohl's Corporate Center, restuarants, hauled wastes,

Additional Information or Comments
Facility Inputs for Lime Softening Eligibility Calculations worksheet has been included with this submission.

Certification

Based on the information provided, I believe that attainment of the applicable water quality standards for chloride may cause substantial and widespread adverse social and economic impacts in the area where this discharge is located. I understand that, as a condition of the variance, the Department and the permittee will need to agree upon an interim effluent limitation, a target value or target limitation, and a compliance schedule to implement source reduction. I understand that these conditions will be included in the WPDES permit issued to this facility. I certify that the information provided is true, accurate and complete.

Individual Submitting Request (Individual must be an Authorized Representative)	Title
Dennis Wolf	Assistant Director of Public Works

Signature of Official  Date Signed 4/4/19

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Attachment to Variance Application for Municipal Facilities

September 14, 2012

Notice: This form must be completed and submitted to the Department to request the variance. Failure to provide all requested information may result in denial of your application. Personally identifiable information collected on this form will be used to administer the watershed management program and may be provided to requestors as required by Wisconsin Open Records law [ss. 19.31, Wis. Stats.]

Facility and Permit Information

WPDES Permit No. WI-0020559

Facility Name Village of Sussex WPCF

1. **Specifically, what steps do you plan to undertake (and when) in the next 5-year permit term to reduce levels of the pollutant (mercury, chloride or other pollutant for which you request a variance) to the treatment plant?** – Examples: "Inspect dental facilities to confirm proper maintenance of amalgam separators"; "Ensure community clean sweep events"; "Evaluate ordinances to require tune-ups of residential point-of-use softeners".
1. Request Village of Lannon to amend its sewer use ordinance for installation restrictions so that outside faucets, or other faucets where softened water is not essential, be placed on unsoftened water.-2019 2. Continue to sample chlorides from industrial, commercial, hauled wastes, and large users, including schools and apartment buildings. - Ongoing 3. Identify areas in the collection system with infiltration and inflow and implement projects to address I/I problems. - Ongoing 4. Continue to educate homeowners on the impact of chloride from residential softeners and on options for softener efficiency. - Ongoing 5. Continue the use of salt brine in de-icing operations, and cleanup of spilled salt on garage floor. - Ongoing 6. Gather data on the amount of softeners in use in the village, as well as the type. – Starting 2019 and ongoing. 7. Target the largest water users with outreach efforts and emphasize optimization of softener, kitchen cold water and outside hose bibs are not plumbed to softened water supply. Start discussions with selected users in 2019, and continue with other users the next 3 years, and any new users in the fifth year of the permit. 8. Encourage the largest water users to replace time based regeneration softeners, and discuss the possibility of installing a brine reclamation system, or dual softening tanks. Same schedule as number 7. 9. Investigate implementing an ordinance mandating high efficiency DIR units for new and replacement softeners, for residences, commercial, and industrial users, include satellite communities -2nd – 5th year of permit. 10. Investigate the implementation of a residential softener optimization incentive program - 3rd - 5th year of permit.

2. **How significant are the reductions you expect with the steps described above?**– Examples: Show expected levels that can be attained over the next five years.
For the first five steps of the plan, we expect to see similar reductions in average monthly chloride concentrations with what seen in the previous permit term. The average summer monthly chloride concentration in 2014/2015 was 499 mg/L, and in 2016/2017/2018 it reduced to 431 mg/L. The average winter monthly chloride concentration in 2014/2015 was 536 mg/L, while in 2016/2017/2018 it reduced to 495 mg/L. Step 6 – We expect minimal reduction as we are gathering data on the amount and types of softeners in use in the village. In some instances, staff may be able to show the benefits of changing out an old softener, and the homeowner follows the advice. Step 7 – Optimization of large water user softeners could result in up to a 27% reduction per instance. The reductions accomplished by changing the softened water supply to non-essential kitchen cold and outside hose bibs is difficult to estimate. Factors include if there are any non-essential connections present and the amount of water used by those faucets. Step 8 – Replacement of any timer based regeneration units to DIR, high efficiency, dual tank, or brine reclamation units, may see a reduction of up to 48% per occurrence. Step 9 – Mandating high efficiency DIR for new and replacement units may see a reduction of up to 48% per occurrence. Step 10 – Residential optimization incentive program may result in up to a 27% reduction per occurrence.

3. **What is the history of variances at your facility?** – Examples: previous variances and previous permit limits, significant changes and efforts made to reduce discharges. Dates of Pollutant Minimization Plans (PMP), Source reduction Measures (SRM) or other plans. Status of annual reports. Summary of steps that have been already taken. 2004 WPDES permit had a chloride variance limit of 514 mg/L. 2008 WPDES permit had a chloride variance limit of 511 mg/L. 2012 WPDES permit had a May-November limit of 500 mg/L, and a December – April limit of 511 mg/L. In February 2013 a phosphorus and chloride reduction evaluation letter was sent to all industrial and commercial users. Every year we have worked on educating homeowners and businesses by having informational flyers about chlorides and optimizing water softener regeneration located at various Village of Sussex public buildings, Lannon Village Hall and the Town of Lisbon Hall. Also, information was put into the semi-annual village newsletter, and on the village's web-site. In conjunction with the yearly road program, all manholes and sewer lines are inspected and repaired when necessary, to reduce infiltration and inflow. Since the last permit, the village has replaced, repaired, or relined 7,388 feet of sanitary sewer; replaced 15 clay laterals to the ROW; grouted 31 laterals to the ROW; grouted 6 manholes; replaced 10 manhole covers which had pick holes; repaired, replaced, or removed 16 manholes; abandoned 410 feet of concrete pipe and one clay lateral.; and installed 7 internal/external manhole chimney seals. The Village of Sussex WPCF receives holding tank wastes, loads are randomly tested for chlorides, and we have banned some loads from further delivery. A letter is sent out to business whose tank loads are higher than average, asking them to look into softener operation, food waste, etc. The Village of Sussex, Village of Menomonee Falls, and the Town of Lisbon have amended their sewer use ordinance for restrictions on outside hose bibs and non-essential faucets be connected to non-softened water. We have continued to sample industrial, commercial, residential areas, as well as hauled tank waste to determine sources and loading. The Village of Sussex has implemented the use of salt brine for de-icing operations. This includes pre-wetting the roads with brine before small snow events, as well as spraying brine on the salt granules during normal road salting operations. Procedures have been put into place to clean up salt that has been spilled in the public works garage before washing of snow removal equipment. All annual reports have been submitted to the DNR as required in our WPDES permit.

4. **Provide trend analysis dating back to before the implementation of PMP, SRM or other variance steps.** – Examples: Include influent and effluent data. For mercury include all data and show trends including sludge data. For chlorides include mass and concentration trends. Reference or attach any facility planning or evaluation study that evaluated facility performance capabilities (Note – Only include studies that are recent or otherwise applicable for the evaluation of the existing facility and current conditions).

See attachments.

Variance Request and Certification

Based on the information provided, I am requesting a variance on the basis that attainment of the applicable water quality standard may cause substantial and widespread adverse social and economic impacts in the area where this discharge is located.

I certify that the information provided is true, accurate and complete.

Print or type name of individual submitting request (must be an Authorized Representative for the treatment facility) Dennis Wolf	Title Assistant Director of Public Works
Signature of Official	Date Signed 4-4-19